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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,223	07/07/2003	Casey Patrick Hare	M003 100074	8522

32662 7590 03/03/2004

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EXAMINER

CYGAN, MICHAEL T

ART UNIT PAPER NUMBER

2855

DATE MAILED: 03/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/615,223	<b>Applicant(s)</b> HARE ET AL.	
	<b>Examiner</b> Michael Cygan	<b>Art Unit</b> 2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.  
    4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-11 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
    a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Objections*

1. Claim 9 is objected to because they are method claims which depend from apparatus claims. Claims must be directed to a single statutory class only. Appropriate correction is required. This objection could be overcome by amending the start of the claim to read, "A method for scanning probe microscopy using the scanning probe microscope of claim 6 wherein".

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 4-6, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Minne (US 6,028,305). Minne discloses the claimed invention, a scanning probe microscopy system and method comprising two scanning probes [134,144], control means (Figure 1, [180]), means for generating first motion control signal [180], means for determining second motion control

signal [180], means for determining first and second offset motion control signals responsive to first and second motion control signals [180], means for generating image scan data from each probe [122], feedback means, placement of tips at distal ends of probes at maximal spacing (Figure 2), means for monitoring deflection signals [126], constant force operation (abstract), and feedback means (Figure 1). See entire document, especially abstract, Figures 5 and 6, column 3 lines 6-11, column 3 line 39 through column 5 line 52, column 6 lines 13-28, column 7 lines 11-18 and line 63 through column 8 line 6.

3. Claims 1, 2, 4, 5, 7, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Choo (US 6,516,528 B1). Choo discloses the claimed invention, a scanning probe microscopy system and method comprising multiple scanning probes [20,22,24,26] at the distal end of cantilevers, control means [32,34,36] which includes means for generating first motion control signal, means for determining second motion control signal, means for determining first and second offset motion control signals responsive to first and second motion control signals, means for generating image scan data from each probe [40], feedback means, placement of tips at distal ends of probes at maximal spacing (Figure 1), means for monitoring deflection signals [30]. The disclosed method of operation includes determining directional (X- and Y-) patterns for a first probe, determining a spacing of a second probe

from the first probe, calculating control signals (X- and Y-) for each of the probes based on the motion of the first probe and the desired spacing between the first and second (and further) probes, simultaneously applying the control signals to drive the probes, and generating image scan data from the probe deflection and position data. See entire document, especially columns 4-7.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choo (US 6,516,528 B1) in view of Minne (US 6,028,305). Choo discloses the claimed invention except for constant force operation. Minne teaches constant force operation in surface profiling using multiple probes (see abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use constant force operation as taught by Minne in the invention taught by Choo to perform the scanning, since Minne teaches such as a method for scanning surface features which keeps the probe at an "effective measurement distance; note also that Choo desires a controlled tip-surface dimension.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choo (US 6,516,528 B1) in view of Altmann (US 6,583,411 B1). Choo teaches the claimed invention except for modifying control signals in accordance with probe positional feedback. Altman teaches modifying control signals in accordance with probe positional feedback, see column 3 line 53 through column 4 line 65 and column 12 lines 33-55. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use modifying control signals in accordance with probe positional feedback as taught by Altman in the invention taught by Choo to perform the scanning, since Altman teaches that this improves stabilization.

***Allowable Subject Matter***

6. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter: a rotational matrix in combination with the other claimed limitations is neither disclosed nor fairly taught in the prior art.

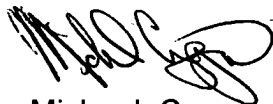
***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kajimura (US 5,036,490) and Duerig (US 4,831,614) disclose cantilever arrays having individually controllable cantilevers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is (571) 272-2175. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Michael Cygan  
Primary Examiner  
Art Unit 2855